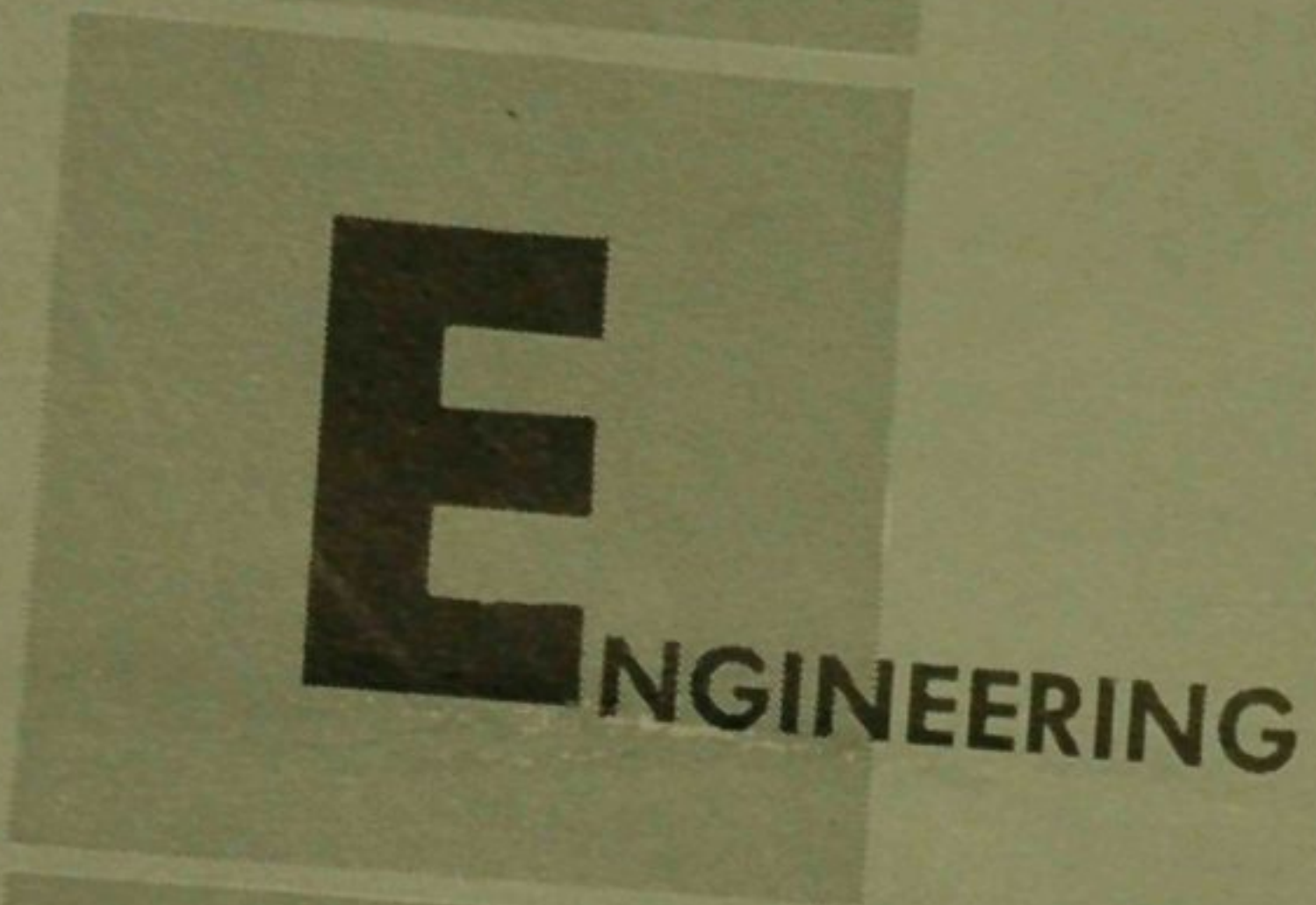
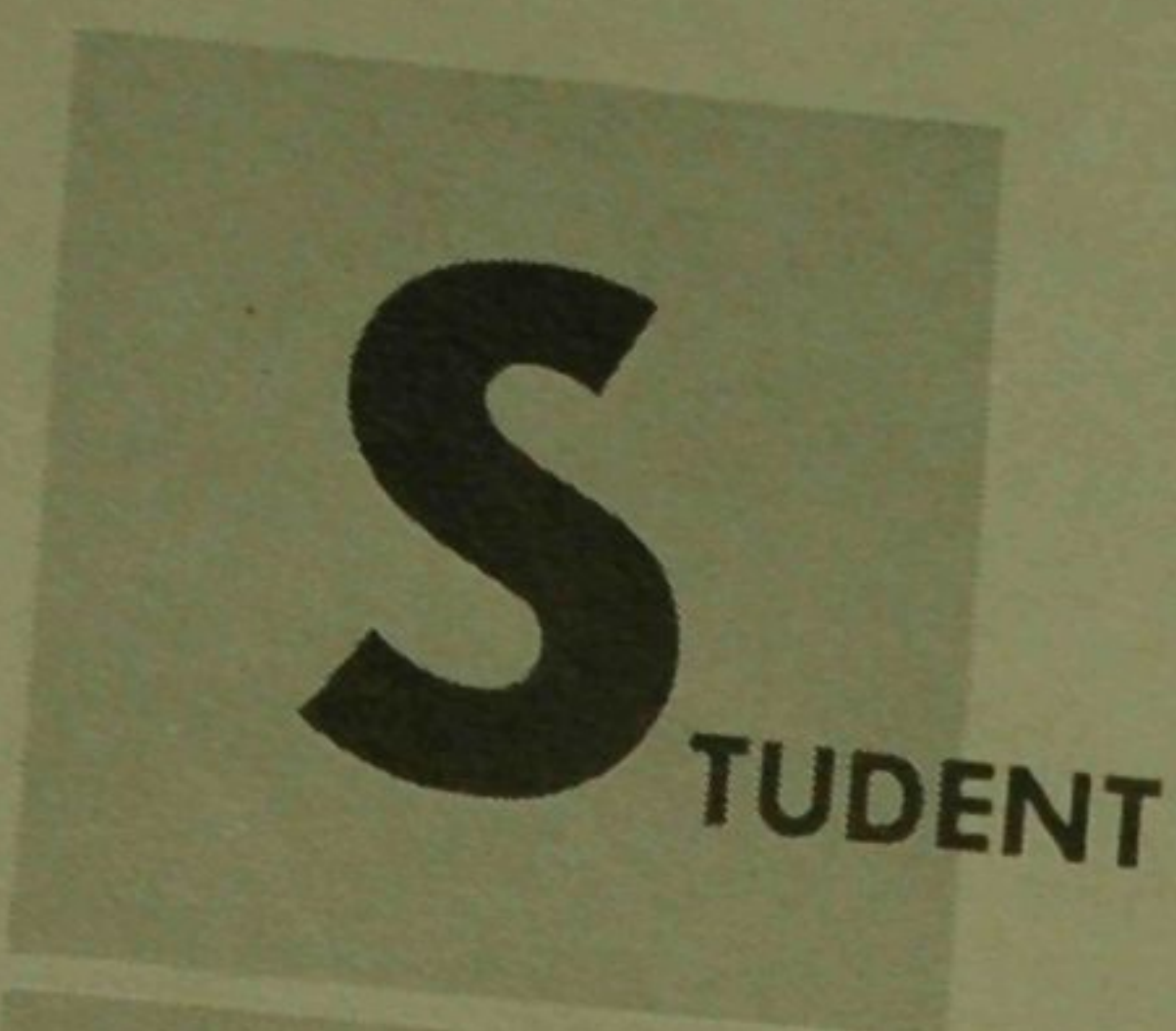
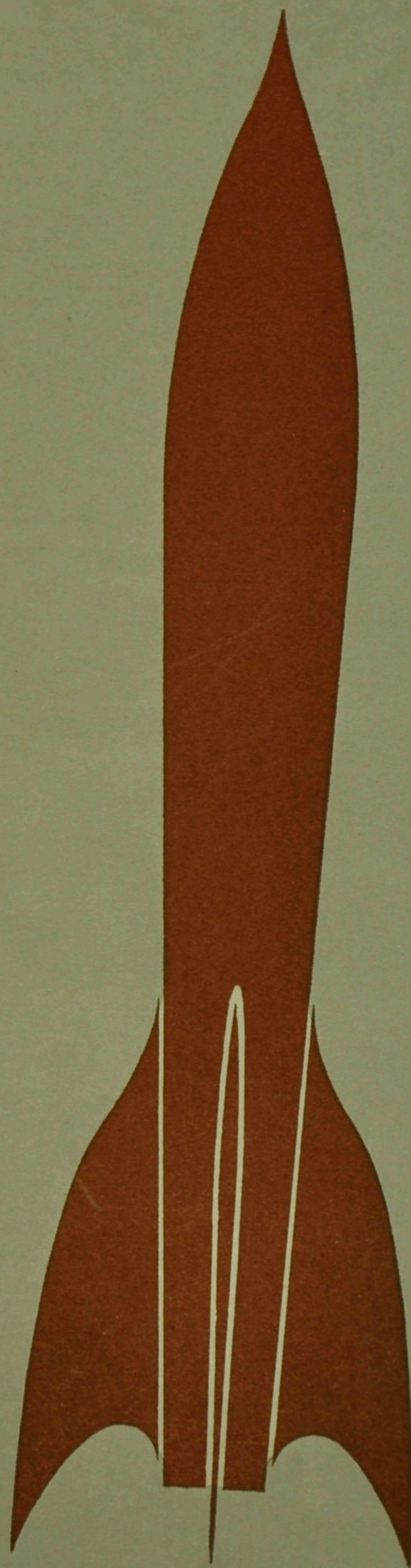


The University of Illinois presents



FRIDAY
MARCH 10
2 PM - 10 PM

SATURDAY
MARCH 11
9 AM - 6 PM



In
"I SEE"
you'll
see
GIANT
ENGINEERING
PARADE . . .
MOVIES
DISPLAYS
DEMONSTRATIONS

Be
sure
to
see

- Dyna-jet engine in operation
- Liquid-air displays
- Black-light exhibits
- 3,000,000 pound testing machine in action
- Rural electrification and soil conservation
- Physical, chemical and electrical experiments
- Hundreds of other fascinating exhibits

ENGINEERING
CAMPUS

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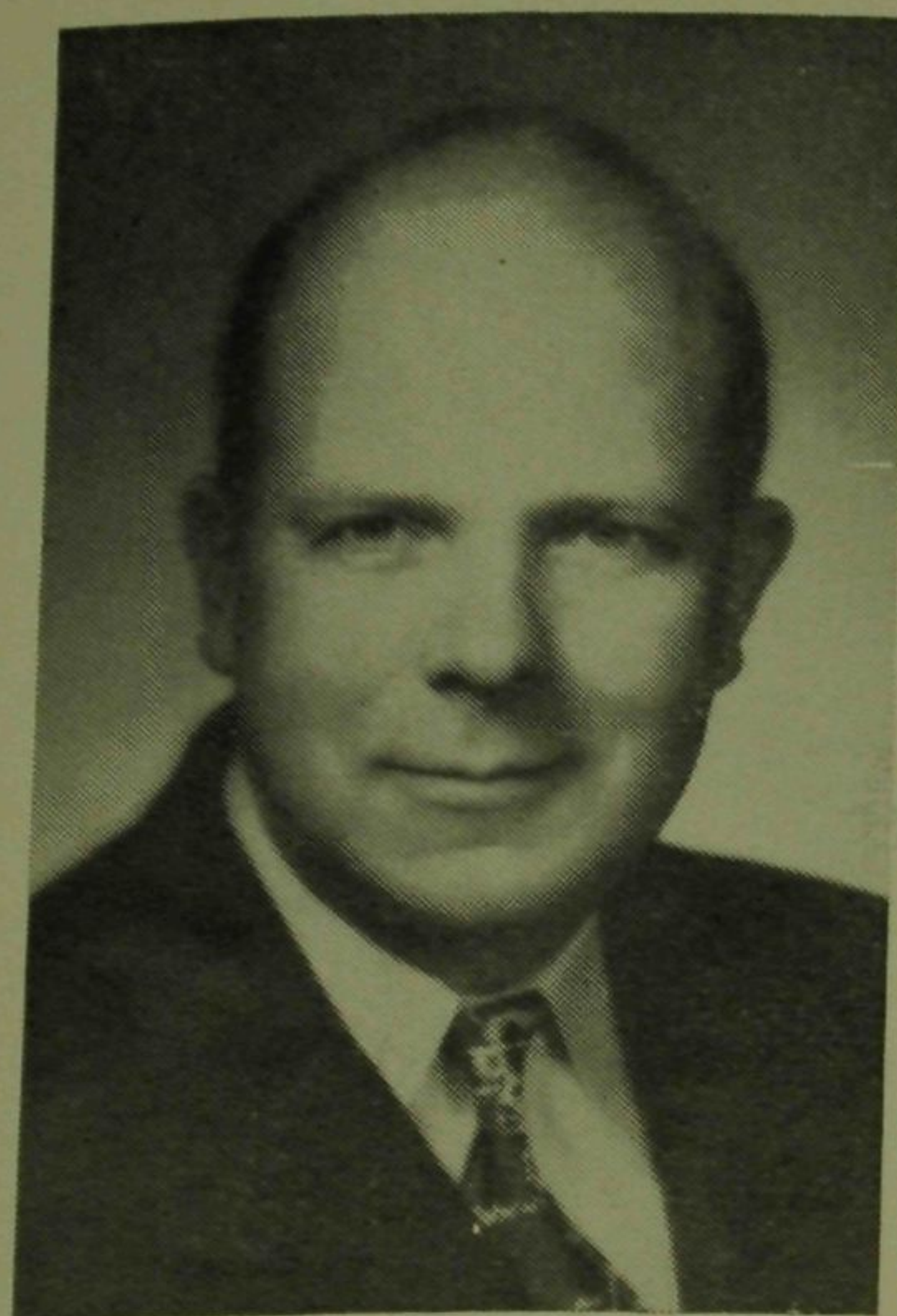
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ENGINEERING OPEN HOUSE

PRESENTED BY STUDENTS
AND FACULTY

AT THE UNIVERSITY OF ILLINOIS



Greetings!

I'm happy to welcome again the guests at our Engineering Open House. It is a privilege I've enjoyed for many years—one to which I always look forward. On behalf of our students and faculty, whose cooperation makes the 1953 Open House possible, I wish you an enjoyable time.

I hope, too, that you will learn something of the way a great engineering college operates.

The things anyone sees most readily are the buildings and the physical equipment. We at Illinois are proud of these, and we trust you will inspect them as thoroughly as time allows.

But the most important things about any college and university are those that you can't see—the intangibles. I mean the abilities of the student body and the faculty, and the spirit in which students and teachers work together. While these things themselves are not visible, their results are. One of these results is the Open House. As you look at the many exhibits that make it up, we hope you will give thought to the esprit de corps which brought it about.

Please feel free to ask students or faculty members questions, not only about the displays and exhibits but about our everyday operations, our courses, our extra-curricular activities, the kind of jobs that our alumni do. And remember that we want you to come back as often as possible and get to know us even better.

W. L. EVERITT

Dean, College of Engineering

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1953

ROUTING

The proposed route for the Open House visitors has been set up in the form of a circle, so that no matter which building a group starts at, they may follow the route and be sure of seeing every exhibit. The route is shown by footsteps on the map in the center pages of this program.

INFORMATION

The central headquarters office for the Engineering Open House is located on the basement floor of the Electrical Engineering building. If you wish any information or have any questions concerning the Open House you may stop there or at any of the information desks located at the entrance of every building.

Located on the basement floor of the Civil Engineering Hall is an information office for information on entrance requirements, programs for the various departments, and other points of information valuable to prospective students at Illinois. Do not hesitate to ask any of the instructors or staff members present any questions you have about enrolling at Illinois.

REGISTRATION OF VISITORS

In order to help in the planning of future student engineering programs, attendance sheets have been placed at the information desks in each building. If you did not register when you received this program please go to an information desk and do so.

Any suggestions or comments, good or bad, will also be appreciated and may be placed in the boxes at the information desks.

LUNCH STANDS

For the convenience of all attending the 1953 Engineering Open House there will be lunch stands serving soft drinks, hamburgers, hot dogs, ice cream, potato chips, and Whiffen Chips. The lunch stands will be located at 8 East Chemistry, Unit Operations Laboratory; 6 Aeronautical Laboratory "B;" and the Lounge of the Mechanical Engineering Building. There will be signs to guide visitors to these refreshment stands.

BUS SERVICE

Free bus service will be furnished from the Engineering campus to exhibits on the outlying campus. These exhibits include Chemical Engineering, Agricultural Engineering, Abbot Power Plant (U of I power generating plant), and the Betatron Building. The bus will leave the west side of the Electrical Engineering Building and the east side of the Physics Building five minutes later for a complete tour every hour and half hour. These stops are marked on the map and signs will be posted at each stop.

M. SMITH

SEP 21 1954

ELECTRICAL ENGINEERING

Come one, come all, see the wonders of the ages! See a real flying saucer—no strings, no motors, but it flies; see corn being popped on dry ice; see a really simple motor—bailing wire, a tin can, but no hair pins; see a self-reversing motor—good washing machine motor material; see real man-made lightning; see a TV camera and receiver setup—if it were only that simple; see radar in operation; see the stroboscopic light—it stops motion; see any pattern you cut out of a piece of cardboard reproduced electronically; watch photo tubes perform—they're better than people.

If you really want to be bright, see the lighting show. Learn the history of lighting, see a multitude of different lighting fixtures, see shadows play tricks on your eyes, see what effects lighting has on you and your daily life, see beautiful black light colors, look at the effects of polarization and prisms.

If you want to do things, try to pit yourself against these electrical devices. How dynamic are you?—test it on the machine which tests human power. What is your osculatory potency? test it on the Kissometer; ummm! Are you color blind?—test yourself and see. Write with a stream of electrons on the Ghost Writer. Send a message anywhere in the U. S. from the amateur radio station in operation. Try to beat an electronic brain in the take-away-a-ball game. Try your hand at driving a nail or throwing a ring at a peg—it's easy if you know how.

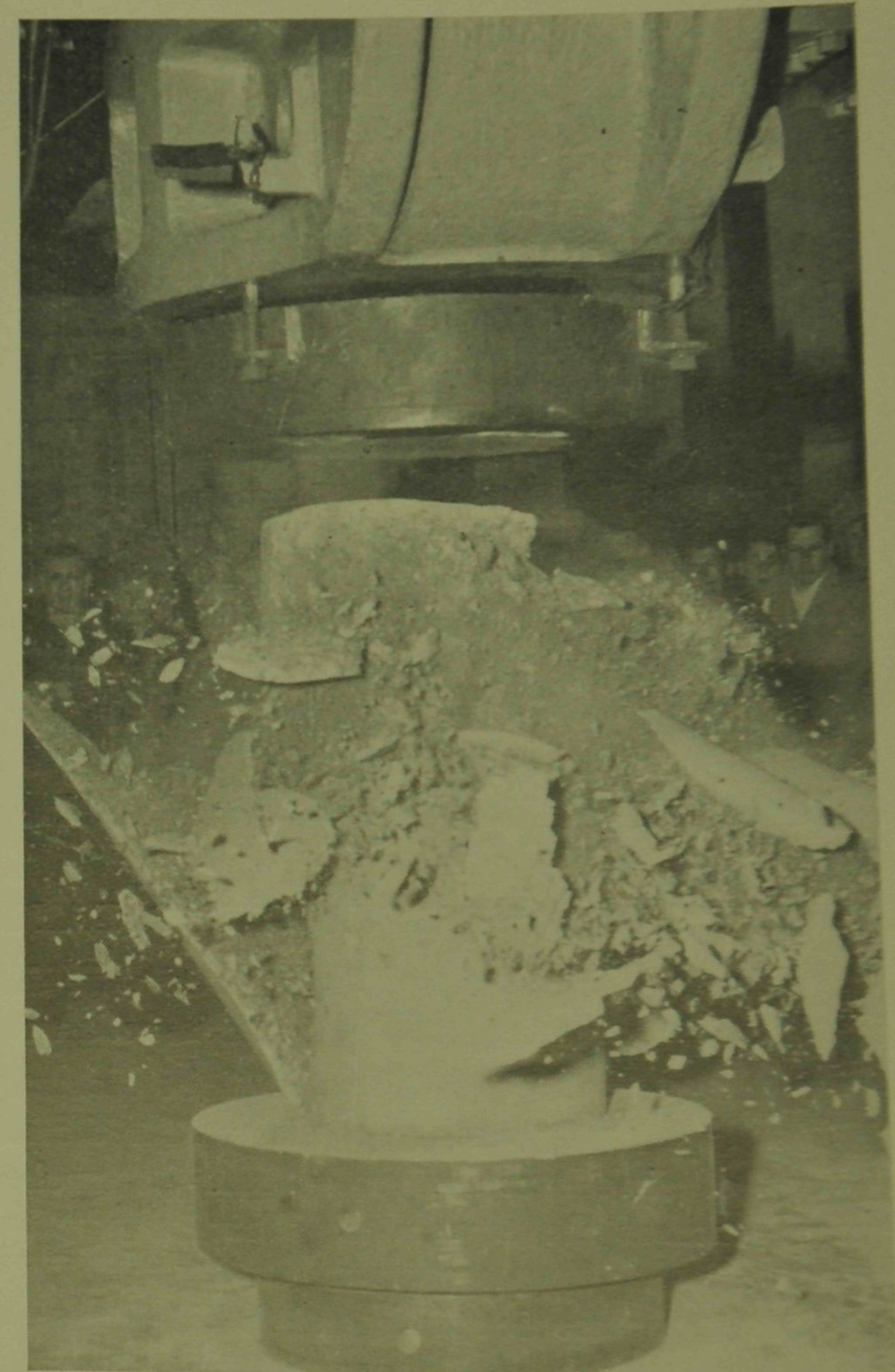
If you are more technical minded, see research in Electrical Engineering actually going on. Yes, come one, come all; there's enough for all to see and do.

TALBOT LABORATORY

The Department of Theoretical and Applied Mechanics will test a huge concrete cylinder once an hour on the half hour. The explosive like failure, shown below, will actually shake the building. The testing machine which will be used is more than four stories high and has a capacity of 3,000,000 lbs. It is the largest testing machine of this type in the Middle West.

Amaze your friends by showing them that you can bend a 2½ inch round brass beam with your little finger. An extremely sensitive electrical device is used to measure very small amounts of bending and will prove that you can bend the beam with your little finger.

See water flowing in a glass-walled flume suddenly jump upwards into the air and form a nearly vertical wall of water. This extremely



interesting phenomenon is known as the "hydraulic jump," and can be seen in the hydraulics laboratory along with other interesting demonstrations and experiments pertaining to the flow of fluids.

FOUNDRY

Main Floor—Making of sand molds, casting of cast iron, aluminum, and brass. Souvenirs will be distributed. Basement—Core making and drying, sandblasting. Sand Testing Laboratory—testing of various properties of molding sands. Cast iron will be poured at 7:30 P. M. and 9:00 P. M. Friday.



AERONAUTICAL ENGINEERING LABORATORIES

The Aeronautical Engineering Department will display items which play an important part in the fields of instruction and research.

There are various means by which the flight characteristics of a body may be studied. The wind tunnel allows for the measurement of lift and drag of airfoils at various speeds; the smoke tube presents a visual picture of the flow of air about a body by means of smoke streams; the shock tube permits the study of air flow and pressures about a body at supersonic speeds; and the Schlieren photographic process is used to record the pressure distribution in the shock tube. There will be on display an LK glider used by the U of I Glider Club in its work.

The study of structural problems is facilitated by the landing gear drop test which is used to insure the design of sufficiently strong members; the hydraulic testing machine with which stresses in test members may be studied; the torque box which permits the study of the forces on a member when it is twisted; the photoelastic process shows the stress distribution in an airfoil by means of polarized light; and the measurement of the dynamic forces in a structure with continually changing load.

For the propulsion section there will be on display a group of complete and cutaway engines from past and present aircraft. These will include the world's largest pulse jet, German rocket engines, the

first turboprop engine, a J-35 turbojet engine, and a R-2850 reciprocating engine. Also on display will be the first design model of a valveless pulse-jet and beside it the latest in the series, both of which have been conceived and designed by Prof. McCloy of the Aero. staff.

There will also be on display typical design and classroom work from courses offered in the Aeronautical Engineering curriculum.

MECHANICAL ENGINEERING LABORATORY

MECHANICAL ENGINEERING

Power Laboratory—educational unit power plant, cutaway of an aircraft jet engine, air conditioning test apparatus, motorist reaction timer, running of Otto engine. Physical Environment Laboratory—high altitude chamber. On the main floor will be a display of home heating test equipment and special research instruments.

AGRICULTURAL ENGINEERING

Due to the distance the Agricultural Engineering buildings are removed from the main engineering campus, special exhibits showing the application of engineering principles to agricultural problems will be displayed in the southwest section of the Mechanical Engineering Laboratory. The exhibit will include displays of:

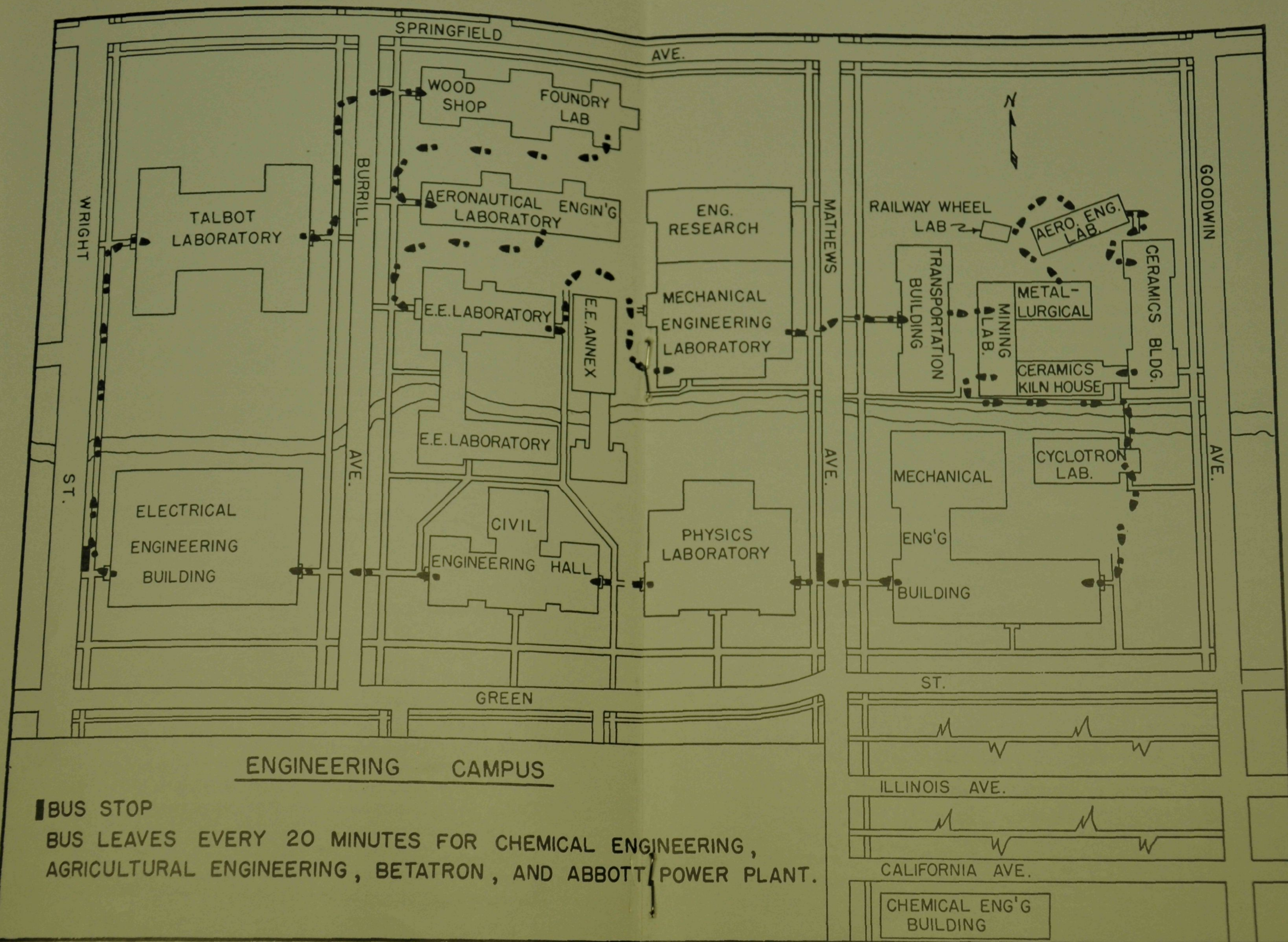
- Farm Mechanization
- Rural Electrification
- Agricultural Architecture
- Irrigation, Drainage, and Soil Conservation

The Agricultural Engineering Research Laboratory and class room buildings on the south campus will be open to the public during the Open House. Ample parking facilities adjoining the buildings, free bus service from the Engineering campus, and conducted tours of the Agricultural Engineering Buildings will be provided.

TRANSPORTATION BUILDING

Although few engineers ever become professional draftsmen, the mastery of the principles of Engineering Drawing is essential for the work done by any type of engineer. It is indispensable as a means of conveying ideas for structures and machines. It is, indeed, the engineer's language. Its signs and symbols are being standardized to facilitate the exchange of plans and ideas, not only throughout the United States, but on an international basis as well.

Exhibits shown by the General Engineering Drafting Department will include the following: Industrial Production Illustrations—work done in the student course, Demonstration of the Airbrush; Aircraft Drafting and Lofting; Slide Rules—fifty different types; New Methods

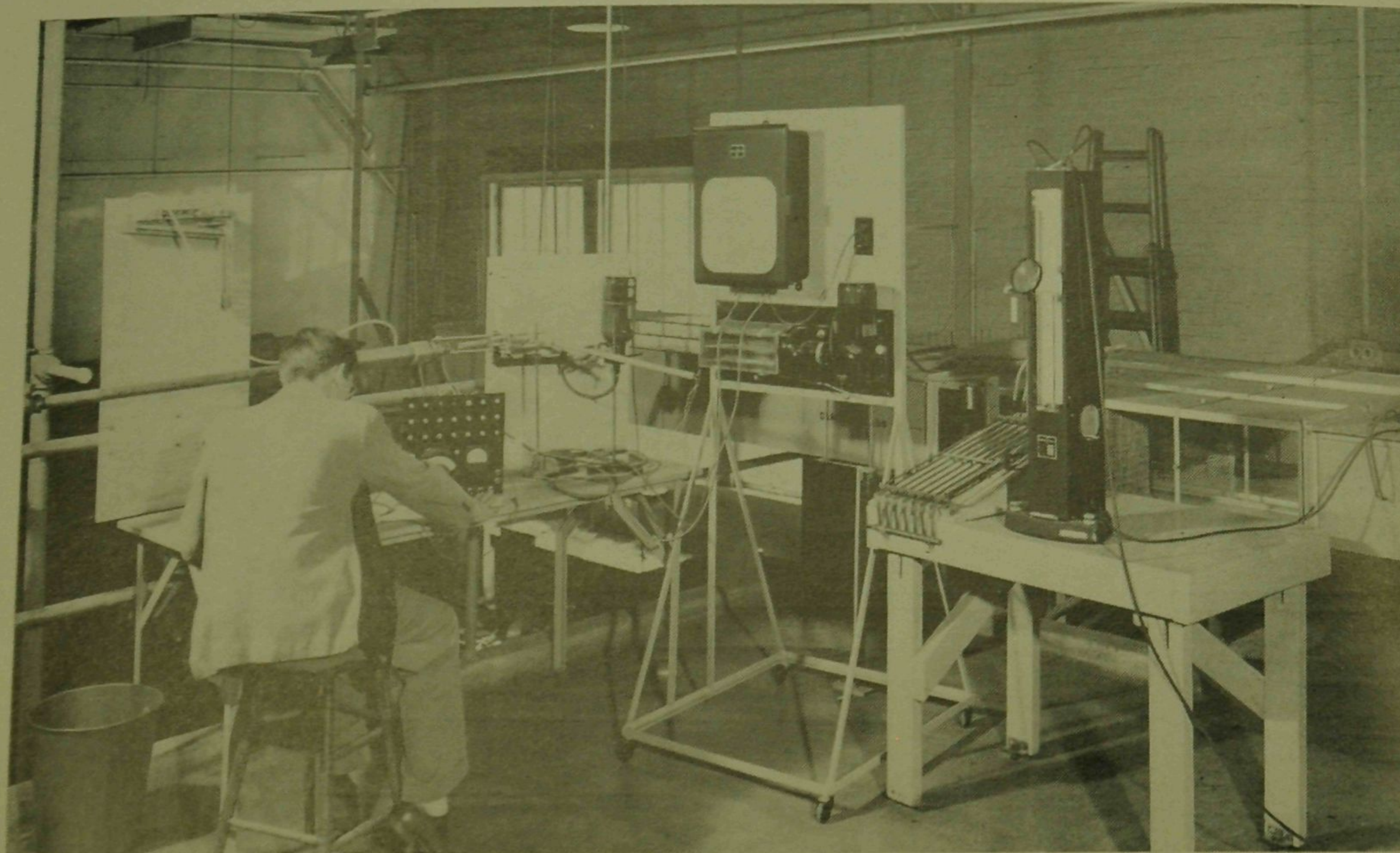


of Reproducing Engineering Drawings; Display of nineteen Patent Drawings which have changed civilization.

MINING LABORATORY

The feature attraction of the Mining Department will be nine scale models of various mining methods including open pit, block caving, room and pillar, and square set methods. A tour will be conducted of the mine ventilation laboratory, one of the most modern in the country, showing mine ventilation apparatus, mine safety lamps, detection of gases, and gas analysis equipment. Exhibits of diamond drilling, particle sizing using a glass infralyzer, a model of a mine, and a display of important minerals.

Demonstrations will illustrate oil froth flotation method of separating galena, sphalerite, and limestone; coal preparation by washing and flotation of coal fines; the explosibility of coal dust using coal dust, ordinary flour, and sulfur; and how photo-elasticity is used to determine the stresses around mine openings. Movies of mining and metallurgical operations will be shown.



METALLURGICAL LABORATORY

Metallurgy is a little known yet extremely important field of engineering. It may be divided into two sub-groups, extractive metallurgy and physical metallurgy. Extractive metallurgists worry about winning metals from their ores while the physical metallurgist (the curriculum at the Univ. of Ill. favors the physical metallurgist) worries

about the properties, both physical and chemical, and the proper end uses for these metals.

Films on the extraction of metals from their ores and the fabrication of these materials into useful forms will be shown. In the furnace room, steel and aluminum will be melted and cast into ingots, the effects of heat treating these metals will be demonstrated, and a high-frequency electric furnace which operates at temperatures around 3000 degrees F. will be shown.

Inspection procedures used in the quality control of industrial products will be shown. These include a Magnaflux machine which can "see" inside a piece of steel, a cut-off wheel which cuts through metals at high speeds, and a series of microscopes and specimens which illustrate, at magnifications up to 1000 times normal size, the steps in polishing metal specimens, and spark testing.

Metals have sense appeal—hear metal cry out loud, feel cold metals become mysteriously warm while being held in your hand, see metal being plated from solution.

RAILWAY WHEEL LABORATORY

Learn how tests are made on railway wheels in the Railway Wheel Laboratory in order to provide smoother and better riding for you in the future. Car wheels are tested in the laboratory under more severe conditions than they are subjected to in regular service.

CERAMIC ENGINEERING LABORATORY

The Ceramic Engineering exhibit will be presented in the following divisions:

Glass—showing the development of glass properties through research and engineering into the versatile material which is basic to our civilization.

Enamels—depicting the values of porcelain enamels to the individual, including demonstrations of enamel applicability.

Structural Clay Products—showing typical structural clay products which have added to the advance of our present-day civilization.

Whitewares—showing the steps in making dinnerware and demonstrating the important properties of ceramic whiteware, including electric porcelains.

Refractories—illustrating linings in blast furnaces, glass tanks, etc., together with sample refractory materials and examples of their uses.

MECHANICAL ENGINEERING BUILDING

Tool Design Laboratory—display of tools and production plant layouts. Machine Design Laboratory—photoelastic stresses in gear teeth, fatigue of metals as seen under a microscope, balancing machines, lubrication models. Motion and Time Study Laboratory—work station layouts and movies to show time study techniques.

Welding Laboratory—gas welding and cutting, arc welding, metal spraying, and tests of welds. Machine Tool Laboratory—machine tools, demonstrations of operations of special machines, and machining parts for small engines. Heat Treatment Laboratory—heating steel by induction heating, heating and quenching of steel, and temperature of a match flame. Also, the microstructure of various metals and testing and hardness of metals.

Internal Combustion Laboratory—performance testing of standard automotive and diesel engines on dynamometer test stands. Also a cutaway automobile chassis with moving parts will be shown. The following test engines will be operated: diesel and gasoline engines with variable compression ratios and an airplane engine at various simulated altitudes.

PHYSICS LABORATORY

The Physics Department cordially invites all Open House guests to visit the exhibits which have been set up in the Physics Laboratory for their instructive enjoyment. The exhibits will be highlighted by a half-hour lecture—demonstration given every hour. Many varied physical phenomena will be presented and explained.

The actual exhibits will include experiments in low temperature physics featuring “the coldest stuff on earth”—liquid helium, in the effects of magnetic fields, and in the conservation of angular momentum (this one will throw you!).

In addition we are particularly proud to present two extensive displays, one dealing with polarized light and the other with the modern physics of atomic and nuclear energies. Also included in the exhibit will be a cloud chamber and natural and artificially produced radioactivity.

The Physics Department will also present conducted tours through the Nuclear Radiations Laboratory (Cyclotron Building).

CIVIL ENGINEERING HALL

CIVIL ENGINEERING

Civil Engineers do many different kinds of work. This is evidenced by their presence at practically all types of engineering projects. With the following exhibits we will try to show you just what a civil engineer does.

Surveying equipment is necessary to determine the location of highways, bridges, large machinery, and buildings. Surveying equipment—old and new—is the subject of one of our exhibits. In foundation work, the type of soil at the job site is of great importance, and the soil samples shown in our exhibit are a great aid in foundation design. The problem of construction procedure and the equipment to be used is a major concern to the civil engineer. The civil engineer selects and supervises the operation of the construction equipment shown in our exhibit. Many of the steel trusses and concrete beams and floors you have seen and walked on have been designed by the civil engineer. Some of the typical design problems are on display in the form of student problems. Transportation is a major problem for the civil engineer, and some of the tests and equipment used in traffic engineering, as well as a history of railroad rails are shown in the Civil Engineering exhibit. Yes, the civil engineer is concerned with many types of work, as will be shown by movies depicting the numerous phases.

SANITARY ENGINEERING

The Sanitary Engineering exhibit, housed in the Civil Engineering Hall, may be located by the attractive and interesting piece of work outside of the room which will interest the spectators and perhaps persuade more people to come in and view our exhibit. Inside the room there will be a motion picture that will play continuously. This projector, the type which shows in a lighted room, will present an interesting picture on public health.

On the various design tables located throughout the room, there will be layout designs of sewage and water treatment plants. These are the problems done by the students in Sanitary Engineering and should prove of great interest, particularly to the visiting high school students.

A typical sewage treatment plant in miniature will be on display in the room.

Outside of the Civil Engineering Hall there will be parked a mobile laboratory unit that the State of Illinois Public Health Depart-

ment has graciously consented to let us use. In this laboratory there will be students demonstrating various techniques used for detecting stream pollution.

CHEMICAL ENGINEERING BUILDING

First stop—the information table for routing slips and other general information.

A cone crusher, jaw crusher, and screening equipment will be operated to illustrate the treatment of ores prior to their chemical treatment. The use of radioactive tracers in research to study the diffusional properties of various elements and compounds will be shown. An absorption tower will be operated to illustrate the principle of continuous separation of a mixture of two gases, one of which is water soluble. A continuous rotary filter exhibit demonstrates the continuous separation of solids dispersed in a liquid phase, such as is used for starch-water separation. A ten foot by four inch diameter all glass liquid-liquid extraction tower packed with Berl saddles will be operated to show the method of separation of two liquids whose near boiling points preclude separation by distillation. An actual distillation in an all glass, bubble cap, distillation tower will be run to illustrate the method of continuous separation of multicomponent mixtures. An all glass, long tube evaporator will be used to demonstrate the method of concentration of heat sensitive materials. Milk will be concentrated and free samples will be given. Another exhibit shows the actual methods of production and control of a typical antibiotic and its bacteria control.

Movies on Petroleum Refining will be shown at 9:30 A. M., 10:30 A.M., 1:30 P.M., 3:30 P.M., and 7:30 P.M. in the Auditorium, Room 116 E. Chem.

R.O.T.C. EXHIBITS

The Army, Navy, and Air Force Reserve Officers Training Corps Units will have exhibits and training aids at various points along the Open House route.

ALSO DON'T MISS THESE

The power plant of the University will be open for general inspection. Regular tours continuously during the Open House. The Physics Department will give conducted tours through the famous Betatron Laboratory.



PARKING FACILITIES

Parking stickers for cars and buses will be available at the Open House Central Headquarters in the basement of the Electrical Engineering Building. These stickers will allow you to park on any University parking lot. For the latest parking information please contact the Central Headquarters immediately upon arrival.

THANKS

A project such as the Open House requires much time and labor and we wish to thank all of those students and faculty whose efforts have made it possible. A special vote of thanks goes to Ron Arnold, who designed and produced the cover, and Frank Vileta, who drew the routing map on the center pages. We also extend our thanks to those firms who contributed equipment and exhibits for the Open House.

ENTERTAINMENT AT FOUNDATIONS

Several of the religious foundations on the campus are planning entertainment for Open House visitors. For further information check at the central headquarters.

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Secretary-Treasurer HAROLD HARPER

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Robert Hardin, co-chairman
Don Judd, Transportation
Robert Schaefer, Room Reservations
Robert Carper, Lunch Stands
Roger Funk, Signs
Floyd Kruenegel, Special Effects

SPECIAL ASSISTANT, Dick Chester

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Richard Cole, Routing

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